



Description of a new species and redescription of two rare species of *Parapercis* (Perciformes: Pinguipedidae) from the tropical Pacific Ocean

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Abstract

Parapercis johnsoni **sp. nov.** is described based on 19 specimens from Marquesas Islands, French Polynesia. It differs from congeners in having a combination of the following characters: dorsal-fin rays V, 21; anal-fin rays I, 17; pectoral-fin rays modally 17; pored lateral-line scales modally 52 or 53; predorsal scales 7 or 8; transverse scale rows 3.5 or 4 + 14 or 15; total gill rakers on 1st gill arch 13–16; single row of teeth on vomer; 6 large canines at front of lower jaw; and a distinct coloration. Two rare species, *P. flavescens* Fourmanoir & Rivaton, 1979 and *P. fuscolineata* Fourmanoir, 1985, are re-described based on the types and newly identified specimens. Comments on other species occurring in the area are provided.

Key words: taxonomy, Pisces, *Parapercis johnsoni* **sp. nov.**, *Parapercis flavescens*, *Parapercis fuscolineata*

Introduction

The sandperch genus *Parapercis* is the most speciose in the Pinguipedidae, currently comprising 79 valid species (Ho *et al.*, 2014; pers. data), whereas the other six genera comprise only 1 or 2 species. Fourmanoir & Rivaton (1979) described *Parapercis flavescens* based on two specimens collected from south of the Isle of Pines, New Caledonia. Fourmanoir (1985) described two other species, *P. rosea* and *P. fuscolineata*, each based on four specimens, collected from the Philippines. All three species have rarely been mentioned, despite more than 20 papers dealing with taxonomic and nomenclatural issues and regional checklists in the past two decades (pers. obse.). Randall (2001) treated these three species as valid, but gave *P. rufa* as a replacement name for *P. rosea*. Ho & Causse (2012) gave a redescription of *P. rufa*, based on the types and three specimens collected from offshore Taiwan. However, the other two species remain poorly known.

Examination of pinguipedid specimens deposited in the fish collection of Muséum National d'Histoire Naturelle (MNHN) revealed 7 unidentified specimens of *P. flavescens* collected from New Caledonia and 3 unidentified specimens of *P. fuscolineata* collected from Vanuatu, New Caledonia and the Solomon Islands, respectively. Together with the type series of both species, a redescription is provided for each.

In addition, 19 specimens of *Parapercis* collected from Marquesas Islands of French Polynesia are recognized as an undescribed species. The new species shares a number of characteristics with 16 congeners that have a reddish body, usually 5–8 saddles on dorsal surface, 50–58 pored lateral-line scales, single row of teeth on vomer, and no teeth on palatines. A formal description of the new species and redescription of two rare species are provided, as well as comments on other species occurring in the area.

Methods and material

Methods for taking counts and measurements followed Randall *et al.* (2008) generally. All measurements are taken from point to point. The body depth and width are taken at the pectoral-fin base. Caudal fin length is taken in two

parts, one with the prolongation and one without. Vertebral counts are taken from x-ray films. Specimens were not measured when strongly bended. Data for comparison are those provided in Randall Francis (1993), Johnson (2006), Randall (2008), Randall *et al.* (2008), Ho & Shao (2010) and Ho *et al.* (2012), for which most type specimens were examined by the author.

Taxonomy

Parapercis johnsoni sp. nov.

New English name: Polynesian sandperch

Figs. 1A–C, 2A–B; Table 1

Holotype. MNHN 2000-5243 (106.7 mm SL), N. o. *Alis*, sta. cp1228, 9°43'59"S, 138°51'00"W, Hiva Oa, Polynesia, South Pacific Ocean, 107–108 m, perch trawl, 30 Aug. 1997.

Paratypes. Eighteen specimens, 68.0–101.9 mm SL. All collected by N. o. *Alis* from Marques Islands of French Polynesia under the expedition Campagne Musorstom 9. MNHN 2000-4491 (1, 80.6), sta. cp1159, 7°58'01"S, 140°43'01"W, Eiao, 145 m, perch trawl, 23 Aug. 1997. MNHN 2000-4556 (3, 80.3–89.7), sta. cp1177, 8°45'00"S, 140°13'59"W, Nuku Hiva, 108–112 m, perch trawl, 25 Aug. 1997. MNHN 2000-4567 (1, 82.8), sta. cp1227, 9°43'59"S, 138°52'01"W, Hiva Oa, 84–85 m, perch trawl, 30 Aug. 1997. MNHN 2013-1235. (10, 68.0–101.9), collected with the holotype. MNHN 2000-4556 (1, 84.7), sta. cp1177, 8°45'S, 140°13'59"W, Nuku Hiva, 108–112 m, 25 Aug. 1997. MNHN 2000-5188 (1, 84.8), sta. cp1157, 7°58'59"S, 140°43'59"W, Eiao, 120 m, 23 Aug. 1997. MNHN 2000-5504 (1, 83.1), sta. cp1238, 9°40'59"S, 139°3'W, Hiva Oa, 280–370 m, 31 Aug. 1997. QM 39130 (2, 90.7–97.1), collected together with the holotype.

Diagnosis. A species of *Parapercis* differs from all congeners in having 4th and 5th dorsal-fin spines about equal in length, dorsal surfaces of head and body and dorsal fins uniformly brownish with 3–7 irregular black patches on soft dorsal fin. It can also be distinguished by a combination of the following characters: dorsal-fin rays V, 21; anal-fin rays I, 17; pectoral-fin rays modally 17; pored lateral-line scales modally 52 or 53; median predorsal scales 7 or 8; transverse scale rows modally 4/14; gill rakers on 1st gill arch 13–16; single row of teeth on vomer; no teeth on palatine; 3 pairs of enlarged canines at front of lower jaw; single large pore on front of chin; single row of 6 large pores on free margin of preopercle; and a prolongation on upper lobe of caudal fin.

Description. The following data or character states are provided for the holotype, followed by those taken from the 12 paratypes where different, except where indicated otherwise.

Dorsal-fin rays V, 21, 1st spine very short, 4th spine usually slightly longer than 5th, but both about equal and sometimes 5th slightly longer than 4th; the last spine fully connected to the 1st dorsal-fin ray by membrane, all rays branched; anal-fin rays I, 17, all rays branched, the last one to the base; pectoral-fin rays 17/18 (16–18, modally 17), branched except the uppermost ray; principal caudal-fin rays 17, uppermost 2 and lowermost 1 rays unbranched; pored lateral-line scales 51 (51–55, modally 52 or 53), not including 2/3 (1–4, usually 2 or 3) on the caudal-fin base; scale rows between origin of dorsal fin posteroventrally to lateral line 4 (3.5 or 4, modally 4); scale rows between lateral line posteroventrally and origin of anal fin 14 (13–15, modally 14); median predorsal scales 8 (7 or 8); circumpeduncular scale rows 23 (22–25, modally 23); rakers on outer side of 1st gill arch 4+10=14 (3–5+9–11=13–16, mainly 14); pseudobranchial filaments 16 (13–18); branchiostegal rays 6; vertebrae 10+20=30 (12 specimens examined, including the holotype).

Body relatively short, nearly cylindrical anteriorly and gradually compressed posteriorly; head moderately long and depressed, its length 31.4% (28.9–32.0%) SL; ventral part of head, chest, and abdomen slightly convex; snout moderately long 11.1% (8.3–11.1%) SL; eye moderately large, its diameter 9.4% (8.6–9.6%) SL; interorbital space flat, moderately wide 4.3% (3.2–4.4%) SL.

Mouth large, maxilla reaching a vertical from anterior half of eye; mouth oblique, forming an angle of about 20° to horizontal axis of body; lower jaw extends slightly beyond upper jaw anteriorly; upper jaw with outer row of conical teeth that curve medially and posteriorly, anterior 2 (2 or 3) slightly larger, other teeth smaller and subequal in size; broad band of villiform teeth medial to canines in about 8 (7 or 8) rows at front of upper jaw, gradually narrowing posteriorly to a narrow band of 1 or 2 irregular rows; front of lower jaw with 3 pairs of recurved canine teeth (some with 1 or 2 teeth lost), outer tooth largest; band of about 8 (7 or 8) rows of villiform teeth medial to

canines at front of lower jaw, medial row continuing laterally in jaw posterior to first few canines as row of 8 (6–8) increasingly larger and more strongly recurved teeth (last 3 or 4 of these distinctly enlarged), followed by a single row of small teeth to middle portion of jaw; vomer with single row of 6 (5–9) stout conical teeth (some paratypes with irregular arrangement), 2 (0–4) smaller teeth behind these teeth; palatines without teeth; lips smooth, their inner surface with large fleshy papillae that interdigitate with anterior teeth; tongue broadly rounded, reaching forward to posterior vomerine teeth.

Gill membranes free from isthmus, with a broad transverse free fold. Gill rakers short and spinous, longest about 1/3 length of longest gill filaments. Nostrils small, anterior nostril tube-like, in front of center of eye (viewed from side), a little more than half way to groove at edge of upper lip, with a broadly pointed posterior flap that reaches posterior nostril when laid back; posterior nostril dorsoposterior to anterior nostril, ovate with slight rim; internasal distance about 2 (1–2) times diameter of posterior nostril.



FIGURE 1. Holotype of *Pareparcis johnsoni* **sp. nov.**, MNHN 2000-5243, 106.7 mm SL, preserved. A. lateral view of left side. B. dorsal view. C. ventral view.



FIGURE 2. *Parapercis johnsoni* sp. nov., paratype, MNHN 2013-1235, 2 of 10, 101.9 mm SL (above) and 96.9 mm SL (below). A. lateral view. B. dorsal view.

Pores of cephalic sensory system relatively few in number, connected by canals beneath the skin. Row of 3 large pores above maxilla; 3 pores near nostrils, 1 pore above and 1 below the posterior nostril and 1 between nostrils; 2 pores on each side of space between posterior nostril to anterior interorbital space; single row of large pores at anterior half of infraorbital series, becoming 2 rows at posterior half, those on the lower row with an subcutaneous canal connecting to those on upper row; row of 6 (6 or 7) large pores on free margin of preopercle; pores on occiput relatively few, originating from row of 2 pores on posterior interorbital space, divided into two main series, 1 continues to dorsal end of the infraorbital series and 1 to anterior end of lateral-line, then branches to upper end of preopercular series; 4 large pores on mandibular; single large pore at front of chin (2 pores in 1 paratype).

Opercle bearing a strong posteriorly-directed sharp spine, at about same level as ventral edge of pupil when viewed from the side; free margin of subopercle with a small cluster of 3/5 (3–5) spinules; preopercle broadly rounded, its free edge smooth; free margin of interorbital smooth.

Scales strongly ctenoid and imbricate in most parts of body; those on opercle large and ctenoid; on space anterior to pectoral fin base cycloid; on pectoral fin base small and cycloid; on nape anterior to a line from upper free end of gill opening to origin of dorsal fin cycloid; on cheek cycloid, mostly embedded under the skin, except those on dorsal-posterior region are imbricate; on chest cycloid; on abdomen cycloid; on caudal fin progressively smaller and weakly ctenoid, except for some cycloid on posteriormost region, covering about two-thirds of the upper and lower lobes and half of the middle portion; no scales on dorsal, anal, or pelvic fins; predorsal scales extending forward to, or slightly anterior to, a vertical from hind margin of preopercle; lateral line broadly arched over pectoral fin, then gradually slanting to straight midlaterally on about posterior fourth of body.

TABLE 1. Morphometric and meristic data of selected type series of *Parapercis johnsoni* sp. nov.

	Holotype	Holotype+paratypes	
SL (mm)	106.7	71.3–106.7 (n=13)	
% SL		Mean (range)	SD
Head length	31.4	30.3 (28.9–32.0)	0.9
Body depth	16.6	16.7 (13.7–18.3)	1.4
Body width	18.7	18.7 (17.0–19.5)	0.7
Snout length	11.1	9.7 (8.3–11.1)	1.0
Orbital diameter	9.4	9.2 (8.6–9.6)	0.3
Interorbital width	4.3	3.9 (3.2–4.4)	0.4
Upper-jaw length	12.0	11.5 (10.5–12.5)	0.5
Predorsal length	30.9	30.3 (29.3–31.3)	0.6
Prepelvic length	28.3	29.2 (26.6–31.7)	1.8
Preanal length	49.8	49.7 (47.8–51.4)	1.3
Dorsal-fin base	58.3	60.0 (57.8–62.1)	1.4
1st dorsal-fin spine	2.0	1.9 (1.2–3.1)	0.5
2nd dorsal-fin spine	3.3	3.7 (2.9–4.8)	0.6
3rd dorsal-fin spine	5.9	5.9 (4.9–6.7)	0.6
4th dorsal-fin spine	6.3	6.9 (5.8–8.1)	0.6
5th dorsal-fin spine	6.0	6.7 (5.8–7.2)	0.5
Longest dorsal-fin ray	17.1	14.9 (11.6–17.1)	1.7
Anal-fin base	44.8	43.5 (41.3–45.9)	1.5
Anal-fin spine	4.3	4.9 (3.8–5.8)	0.5
Longest anal-fin ray	12.4	12.9 (12.4–13.4)	0.3
Pectoral-fin length	20.5	21.0 (19.5–22.3)	0.7
Pelvic-fin length	24.4	24.5 (23.1–26.3)	0.9
Pelvic-fin spine length	8.3	8.4 (6.7–10.0)	0.8
Caudal-fin length 1	17.5	18.0 (16.7–20.1)	1.0
Caudal-fin length 2	23.5	23.7 (21.5–26.3)	1.3
Caudal-peduncle length	9.4	8.6 (7.6–9.4)	0.6
Caudal-peduncle depth	9.5	9.0 (8.1–9.5)	0.4
Meristics		Value (mode)	
Dorsal-fin rays	V, 21	V, 21	
Anal-fin rays	I, 17	I, 17	
Pectoral-fin rays	17/18	16–18 (17)	
Principal caudal fin rays	17	17	
Pored lateral-line scales	51	51–55 (52 or 53)	
Median predorsal scales	8	7 or 8 (8)	
Scale rows above LL	4	3.5 or 4 (4)	
Scale rows below LL	14	13–15 (14)	
Circumpeduncular scales	22	22–25 (23)	
Pseudobranchial filaments	16	13–18 (14–16)	
Gill rakers	4+10=14	3–5+9–11 (13–16)	

Origin of dorsal fin over 3rd to 4th lateral-line scale, predorsal length about equal to head length; the first 4 dorsal spines progressively longer posteriorly, the last spine entirely attached to 1st soft ray by membrane; soft dorsal-fin rays progressively longer posteriorly, penultimate soft dorsal-fin ray longest; pectoral fins broadly rounded when spread, 9th or 10th ray longest, reaching 2nd (2nd or 3rd) anal-fin ray; origin of pelvic fins anterior to pectoral fin origin, below base of exposed part of opercular spine; pelvic fin relatively long, reaching 2nd (2nd or 3rd) ray of the anal-fin, 4th pelvic-fin ray longest; origin of anal fin below base of 5th dorsal soft ray; anal-fin spine slender; penultimate anal soft ray longest; caudal fin with a long prolongation on upper lobe, about 1 (0.8–1.5) times of eye diameter, and lower lobe rounded.

Coloration. Coloration when fresh unknown, but presumable reddish dorsally and pale ventrally with marks or spots that remained in preservation. Coloration when preserved: dorsal surface of head and body brownish; scales on upper third of body with brown posterior margins; symmetrical curved line extending from posterior interorbital space to upper end of preopercle, some paratypes with symmetrical Λ -shaped pattern at same region; opercle brownish; dorsal fin densely covered by brown melanophores; soft dorsal fin brownish with 3 (3–7) large irregular black patches, each usually crosses 2 or 3 fin membranes, two paratypes with a row of about 15 small black spots on soft dorsal fin at anterior margin of fin rays; a faint stripe or row of spots on lower lateral body axis; caudal fin slightly brownish, posterior margin dusky.

Distribution. Known from the type series collected from Marquesas Islands, French Polynesia, at a depth of 84–114 m.

Etymology. I am pleased to name this species after Jeffrey W. Johnson of the Queensland Museum for his contribution to our knowledge of pinguipedid fishes and for providing valuable information/discussion for my studies.

Comparison. *Parapercis johnsoni* **sp. nov.** belongs to a species group, herein recognized, characterized by the following features: body reddish generally; 5–8 saddles on dorsal surface; 50–58 pored lateral-line scales; V, 21 dorsal-fin rays; the 4th dorsal-fin spine longest; last dorsal-fin spine fully connected to the 1st dorsal-fin ray by membrane; I, 17 anal-fin rays; modally 17 pectoral-fin rays; no teeth on palatines; single row of teeth on vomer; 6 or 8 (usually 6) enlarged canines at front of lower jaw; snout moderately long, about equal to eye diameter; interorbital space moderately wide; and usually a prolongation on upper lobe of caudal fin.

Sixteen species are currently recognized in the species group: *P. albiginna* Randall, 2008 from New Caledonia; *P. basimaculata* Randall *et al.*, 2008 from Okinawa Islands; *P. bicoloripes* Prokofiev, 2010 from Vietnam; *P. colemani* Randall & Francis, 1993 from Norfolk Island, Lord Howe Rise and northern Norfolk ridge; *P. compressa* Randall, 2008 from Indonesia; *P. flavolabiata* Johnson, 2006 from eastern Australia; *P. flavolineata* Randall, 2008 from Indonesia; *P. katoi* Randall *et al.*, 2008 from southern Japan; *P. kentingensis* Ho *et al.*, 2012 from western Pacific; *P. punctata* (Cuvier, 1829) from western Indian Ocean (fresh coloration unknown); *P. randalli* Ho & Shao, 2010 from western Pacific; *P. rubromaculata* Ho *et al.*, 2012 from Taiwan; *P. rufa* Randall, 2001 from Taiwan and the Philippines; *P. sagma* Allen & Erdmann, 2012 from Vanuatu and Indonesia; *P. shaoi* Randall, 2008 from northwestern Pacific; and *P. somaliensis* Schultz, 1968 from western Indian Ocean.

The presence of 3–7 large black patches on soft dorsal fin readily separate *P. johnsoni* **sp. nov.** from all above mentioned species, as well as other congeners. All other 16 species have 5–8 saddle-like blotches on dorsal surface and row(s) of much smaller spots on soft dorsal fin may be present. It can be further distinguished from *P. albiginna* by having a prolongation on the upper lobe of caudal fin and the free posterior margin of preopercle is smooth (17 well-spaced, small nodular bumps on the margin); from *P. basimaculata* by having 3 pairs of canines at front of lower jaw (vs. 4 pairs), single row of pores on the free margin of preopercle (vs. 2 irregular rows), and lacking black spots on base of soft dorsal fin and caudal fin.

It can be further distinguished from *P. bicoloripes* by having cycloid scales on the cheek (vs. ctenoid scales), scale rows between origin of dorsal fin and lateral line 4 or 4.5 (vs. 3.5), pored lateral line scales 51–55 (vs. 55–57), a uniformly pale pelvic fin (vs. the fin largely blackish), and no vertical bars on caudal fin (vs. 3–5 vertical bars); from *P. colemani* by having pored lateral-line scales 51–55 (vs. 55–58), scale rows between origin of dorsal fin and lateral line 4 or 4.5 (vs. 8), medium predorsal scales 7 or 8 (vs. 9), and circumpeduncular scales 22–25 (vs. 29); from *P. compressa* by having a relatively cylindrical body (vs. more laterally compressed), cycloid scales on the cheek, chest, and abdomen (ctenoid scales on these areas), and the free posterior margin of preopercle is smooth (vs. many serrae on upper two-fifths of the margin).

It can be further distinguished from *P. flavolabiata* by having 3 pairs of canines at front of lower jaw (vs. 4

pairs), scales between origin of dorsal fin and lateral line 4 or 4.5 (vs. 5 or 6), and scales between lateral line and origin of anal fin 13–15 (vs. 11 or 12); from *P. flavolineata* by having scale rows between lateral line and origin of anal fin 13–15 (vs. 11 scale rows) and lacking black spots on top of head (vs. present); from *P. katoi* by having mainly 52–53 pored lateral-line scales (vs. 56–58), scales between origin of dorsal fin and lateral line 4 or 4.5 (vs. 5.5, counted by author), median predorsal scales 7 or 8 (vs. 9 or 10), 9–11 rakers on lower limb of 1st gill arch (vs. 12 or 13), and circumpeduncular scales 22–25 (vs. 29).

It can be further distinguished from *P. kentingensis* and *P. shaoi* by having 4 or 4.5 scale rows between origin of dorsal fin and lateral line (vs. 6), a relatively large eye (8.6–9.6% SL, vs. 7.7–8.9% SL in *P. kentingensis* and 7.1–9.0% in *P. shaoi*), and a relatively long pelvic fin (23.1–26.3% SL, vs. 20.3–23.4% SL in *P. kentingensis* and 16.8–24.1% SL in *P. shaoi*); from *P. punctata* by having a smooth free margin of preoperculum (vs. strongly serrated), pseudobranchial filaments 13–18 (vs. 24–27), and lacking spots on dorsal body (vs. present); from *P. randalli* by having scale rows between origin of dorsal fin and lateral line 4 or 4.5 (vs. 6), scales between lateral line and origin of anal fin mainly 14 (vs. 11 or 12), and lacking black spots on caudal fin (vs. 2 irregular rows of black spots present on caudal fin).

It can be further distinguished from *P. rubromaculata* by having scale rows between origin of dorsal fin and lateral line 4 or 4.5 (vs. 6), 13–15 (modally 14) scale rows between lateral line and origin of anal fin (vs. 11), and vertebrae 10+20=30 (vs. 10+19=29); from *P. rufa* by having more pores on head (vs. fewer, see Ho & Causse, 2012, fig. 3), a relatively long pelvic fin (23.1–26.3% SL, vs. 20.3–22.8% SL), single pore at front of chin (vs. 2 pores), and lacking a large ocellus above pectoral-fin base (vs. present); from *P. sagma* by having scales between origin of dorsal fin and lateral line 4 or 4.5 (vs. 6), 7 or 8 predorsal scales (vs. 9 or 10), and line pattern on top of head (vs. spots on same region); and from *P. somaliensis* by having a smooth free margin of opercle (vs. distinctly serrate) and scales between origin of dorsal fin and lateral line 4 or 4.5 (vs. 6.5).

***Parapercis flavescens* Fourmanoir & Rivaton, 1979**

Figs. 3A–C; Table 2

Parapercis flavescens Fourmanoir & Rivaton, 1979:412, fig. 6 (Type locality: Isle of Pines, New Caledonia, 360 m). Randall, 2001: 3503.

Collecting data of type series. Fourmanoir & Rivaton (1979) provided the original collecting data as “sud de l’île des Pins, chalut, 360 m [south of the Isle of Pines, trawl, 360 m]”. The database of MNHN collection (coldb.mnhn.fr) currently provides no information for these two type specimens (MNHN 1978-475, 1978-476). By searching the database of fishes collected from New Caledonia region by P. Fourmanoir, there are only four lots collected from the Isle of Pines, including holotype of *Paraulopus legandi* Fourmanoir & Rivaton, 1979. All specimens were collected from the same locality of “22°34’59”S, 167°30’E, Isle of Pines, New Caledonia, Coral Sea, bottom trawl, 360–415 m”, but without a date. From the information provided by Fourmanoir & Rivaton (1979) and the database, it seems that the type series of *P. flavescens* may have been collected in the same station.

Specimen examined. Holotype. MNHN 1978-475 (90.0 mm SL), south of the Isle of Pines, New Caledonia, 360 m. **Paratype.** MNHN 1978-476 (75.0 mm SL), collected together with the holotype. **Non-type.** MNHN 2000-1390 (2, 77.9–82.8 mm SL), 22°43’59”S, 167°7’59”E, New Caledonia, Coral Sea, perch trawl, 345 m, 24 Jan. 1985. MNHN 2000-1395 (2, 77.2–83.1 mm SL), 22°51’S, 167°12’E, New Caledonia, Coral Sea, perch trawl, 405–430 m, 29 Sep. 1985. MNHN 2003-1915 (3, 75.3–97.2), 22°43’59”S, 167°7’59”E, New Caledonia, Coral Sea, perch trawl, 405–430 m, 24 Jan. 1985.

Diagnosis. A species of *Parapercis* with scattered melanophores on dorsal third of body, more dense on pored scales along the anterior half of lateral line, membranes between 1st and 4th dorsal-fin spines, and forming patches on snout and upper part of eye. The following combination of characters also separates it from the congeners: a small head (26.1–27.3% SL); a very short snout (5.6–7.1% SL); large eye (9.9–12.5% SL); narrow interorbital space (1.1–1.7% SL); 4 canines at each side of front of lower jaw; 2 or 3 rows of conical teeth on vomer and palatines; dorsal-fin rays IV, 23, the spines progressively longer posteriorly; anal-fin rays I, 19; pectoral-fin rays modally 19; pored lateral-line scales mainly 60–61; pre-dorsal scale rows 7–8; scale rows between origin of dorsal fin and lateral line 3.5 or 4.5; circumpeduncular scale rows 22 or 23; total gill rakers of 1st gill arch 16–19.

TABLE 2. Morphometric and meristic data of type series and newly recognized specimens of two *Parapercis* species. Meristic values are given for 76.1 mm and 62.5 mm paratypes respectively when different, question marks indicate not available.

	<i>P. flavescens</i>		<i>P. fuscolineata</i>	
	Holotype	All specimens (n=9)	Paratypes (n=2)	Non-types (n=3)
SL (mm)	90.0	75.0–97.2	62.5–76.1	34.9–114.0
% SL				
Head length	26.1	26.9 (26.1–28.0)	27.2–27.5	25.8–30.4
Body depth	14.2	13.8 (13.1–14.9)	13.3–15.8	12.3–15.0
Body width	13.7	15.9 (13.7–17.1)	15.8–16.8	16.3–18.2
Snout length	6.6	6.6 (5.9–7.3)	5.9–6.4	6.0–7.8
Orbital diameter	9.9	10.9 (9.9–12.5)	9.7–9.9	9.5–13.2
Interorbital width	1.3	1.4 (1.1–1.9)	1.4–1.7	1.6–1.7
Upper-jaw length	9.2	9.6 (9.2–10.0)	8.8–9.9	9.6–10.3
Predorsal length	28.1	29.6 (28.1–30.7)	30.9–31.3	27.7–33.5
Prepelvic length	24.0	24.3 (23.5–26.0)	24.2–24.7	25.7–28.6
Preal anal length	44.4	46.3 (44.4–48.5)	45.9–46.1	43.6–50.1
Dorsal-fin base	59.3	62.2 (59.3–64.1)	61.1–61.9	62.2–64.8
1st dorsal-fin spine	4.2	4.3 (3.2–5.5)	?–3.0	1.1–1.5
2nd dorsal-fin spine	7.0	6.6 (5.7–7.3)	?–4.6	3.0
3rd dorsal-fin spine	7.7	8.2 (7.7–8.9)	5.9–7.9	4.8–5.0
4th dorsal-fin spine	8.2	9.0 (8.2–10.0)	6.9–8.5	6.1–6.5
5th dorsal-fin spine	Absent	Absent	Absent	6.4–6.9
Longest dorsal-fin ray	14.3	12.9 (11.4–14.6)	12.0–12.6	12.3–13.9
Anal-fin base	43.3	43.9 (41.2–46.8)	40.2–45.6	42.1–49.2
Anal-fin spine	2.7	3.9 (2.7–5.6)	2.4–5.3	2.6–4.9
Longest anal-fin ray	11.4	11.8 (10.0–13.2)	12.6–13.0	11.8–12.6
Pectoral-fin length	18.0	20.9 (18.0–22.4)	19.7–21.9	19.9–23.5
Pelvic-fin length	15.9	18.9 (15.8–20.7)	19.8–20.0	18.6–21.5
Pelvic-fin spine length	4.8	7.0 (4.8–9.2)	6.4–7.4	7.1–8.0
Caudal-fin length	19.0	19.0 (17.6–20.3)	20.6–21.0	17.8–23.2
Caudal-peduncle length	8.1	7.6 (6.9–8.2)	6.6–7.8	6.6–9.0
Caudal-peduncle depth	8.0	7.5 (7.2–8.0)	7.8–8.4	8.2–8.3
Meristics		Value (mode)		
Dorsal-fin rays	IV, 23	IV, 23	IV.23	V, 23
Anal-fin rays	I, 19	I, 19	I.19	I, 19
Pectoral-fin rays	19;18	18 or 19 (19)	18	17-19
Principal caudal fin rays	17	17	17/19	17
Pored lateral-line scales	60	58–61 (60–61)	63 or 61/61	60 or 61
Median predorsal scales	7	7 or 8	9	8 or 9
Scale rows above LL	4	3.5 or 4 (4)	3.5/4.5	4 or 4.5
Scale rows below LL	17	15, 17–18	ca.12/?	12
Circumpeduncular scales	22	22 or 23	18/?	21 or 22
Pseudobranchial filaments	13	12 or 13	?/11	10-15
Gill rakers	5+12=17	4–7+11–12=16–19	7+13=20/5+10=15	4–5+8–10=12–14

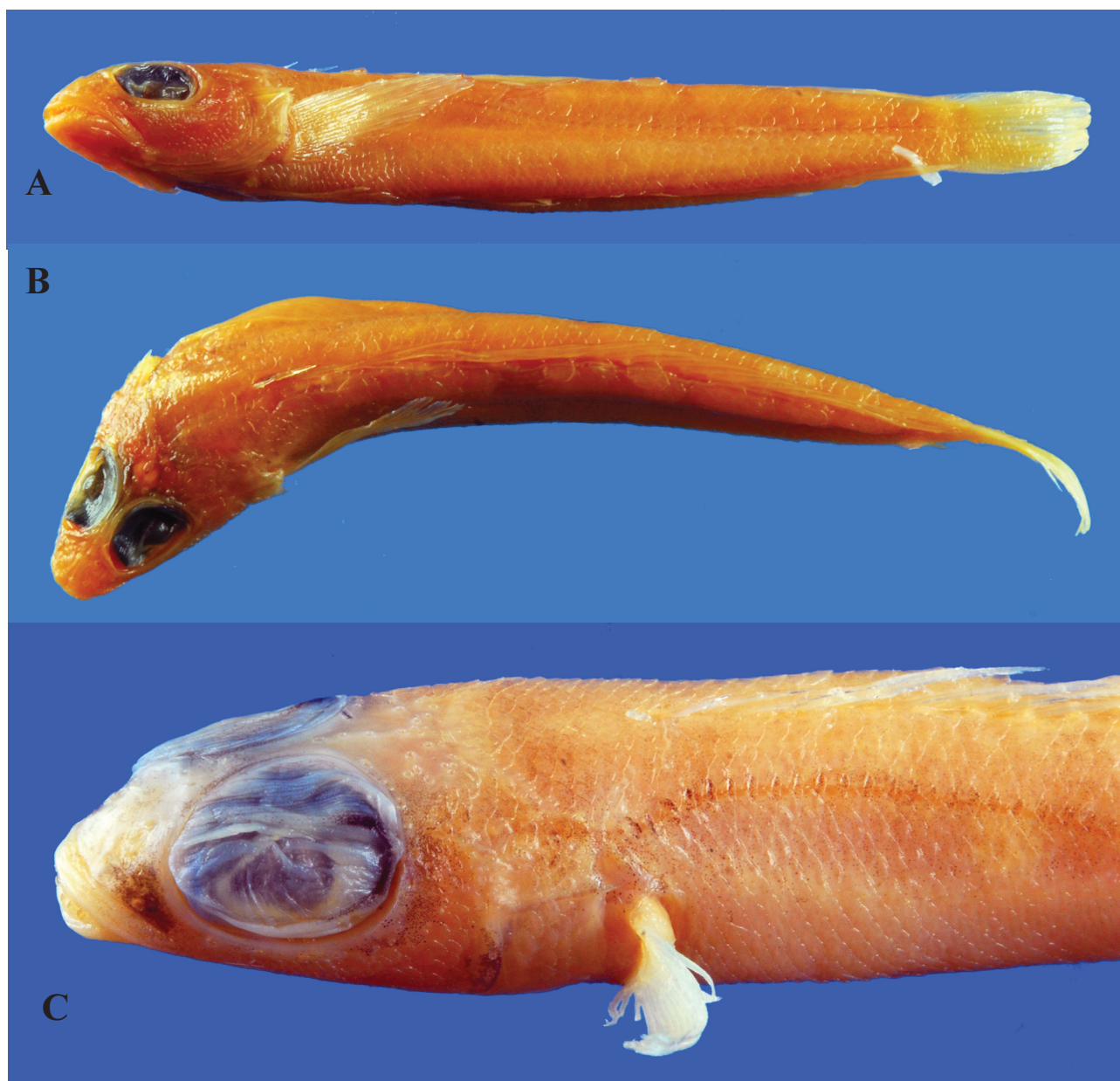


FIGURE 3. *Parapercis flavescens* Fourmanoir & Rivaton, 1979, A, B. MNHN 1978-475, holotype, 90.0 mm SL, lateral view (A) and dorsal view (B). C. MNHN 2000-1395, non-type, 77.2 mm SL, dorsal-lateral view of anterior half of body.

Description. The following data or character states are given for holotype (MNHN 1978-475), followed by those of other specimens in parentheses when different, except where indicated otherwise.

Dorsal-fin rays IV, 23, the spines progressively longer, the first spine relatively long, longer than half length of last spine; the last spine fully connected to the first dorsal-fin ray by membrane, all rays branched; anal-fin rays I, 19, all rays branched, the last one to the base; pectoral-fin rays 18/19 (18 or 19, modally 19), branched except the uppermost ray; principal caudal-fin rays 17, uppermost 2 and lowermost 1 rays unbranched; pored lateral-line scales 60 (58–61, mostly 60 or 61), not including 2 /3 (1–3) on the caudal-fin base; scale rows between origin of dorsal fin posteroventrally to lateral line 4 (4 or 4.5); scale rows below lateral line posteroventrally to origin of anal fin 17 (15–18); median predorsal scales 7 (7 or 8); circumpeduncular scale rows 22 (22 or 23); rakers on outer side of 1st gill arch 5+12=17 (4–7+11–12=16–19); pseudobranchial filaments 13 (12 or 13); branchiostegal rays 6.

Body elongated, relatively slender, nearly cylindrical anteriorly and gradually compressed posteriorly; head short and slightly depressed, its length 26.1% (26.3–28.0%) SL; ventral part of head, chest, and abdomen slightly convex; snout very short 6.6% (5.6–7.3%) SL; eye relatively large, its diameter 9.9% (10.5–12.5%) SL; interorbital space very narrow, its width 1.3% (1.1–1.9%) SL.

Mouth large, maxilla reaching a vertical from anterior half of eye; mouth oblique, forming an angle of about 15°–20° to horizontal axis of body; lower jaw extends slightly beyond upper jaw anteriorly; upper jaw with outer row of conical teeth that curve medially and posteriorly, anterior 2 (2 or 3) distinctly larger, others smaller and subequal in size; broad band of villiform teeth medial to canines in about 5 (3–6) rows at front of upper jaw, gradually narrowing posteriorly to a narrow band in about 1 or 2 irregular rows; front of lower jaw with modally 4 pairs of recurved canine teeth (holotype has 4 teeth on right side and 3 on left side; paratype has 3 on each side; 1 tooth might have been lost), outer one largest; band of about 5 (5 or 6) rows of villiform teeth medial to canines at front of lower jaw, medial row continuing laterally in jaw posterior to first few canines as row of 8 (6–8) increasingly larger and more strongly recurved teeth (last 3 or 4 of these distinctly enlarged), followed by a single row of small teeth to middle portion of jaw; vomer with 3 (2 or 3) rows of stout conical teeth, those on first row distinctly larger than the rest; palatines with 3 (2 or 3) rows of small teeth; lips smooth, their inner surface with large fleshy papillae that interdigitate with anterior teeth; tongue broadly rounded, reaching forward to posterior vomerine teeth.

Gill membranes free from isthmus, with a broad transverse free fold. Gill rakers short and spinous, longest about 1/3 length of longest gill filaments. Nostrils small, anterior nostril tube-like, in front of center of eye (viewed from side), a little more than half way to groove at edge of upper lip, with a broadly pointed posterior flap that reaches posterior nostril when laid back; posterior nostril dorsoposterior to anterior nostril, ovate with slight rim; internasal distance about 2 (1–2) times diameter of posterior nostril.

Pores of cephalic sensory system relatively few in number and connected by canals beneath the skin; row of 3 large pores above maxilla; 2 pores near nostrils, 1 pore above and 1 below the posterior nostril; 2 pores on each side of anterior interorbital space; single row of large pores at anterior half of infraorbital series, becoming 2 irregular rows at posterior half, each pore on lower row connected by a subcutaneous canal from the main canal of upper row; pores on top of head forming two major series, 1 continues to upper end of infraorbital series, 1 to anterior end of lateral line with a branch, and continues to upper end of preopercular series; row of 6 large pores on free margin of preopercle; 4 large pores on mandibular; two large pores at front of chin.

Opercle bearing a strong sharp spine, at about same level as ventral edge of pupil when viewed from the side; free margin of subopercle with a strong spine (2 smaller spines in left side of holotype), slightly smaller than the opercular spine; preopercle broadly rounded, its free edge smooth; free margin of interorbital smooth.

Scales strongly ctenoid and imbricate in most parts of body; those on opercle large and ctenoid; on space anterior to pectoral-fin base ctenoid; on pectoral-fin base small and ctenoid; on nape anterior to a line from upper free end of gill opening to origin of dorsal fin cycloid; on cheek large, those on anterior portion cycloid and on posterior portion weakly ctenoid; on chest cycloid anteriorly and ctenoid posteriorly; on abdomen weakly ctenoid, except for some cycloid ones near the pelvic-fin base; on caudal fin progressively smaller and ctenoid, except for some cycloid ones at posterior margin of the scale patch, covering about 3/4 of the upper and lower lobes, and 2/3 of the middle portion; no scales on dorsal, anal, or pelvic fins; predorsal scales extending forward to, or slightly anterior to, a vertical from hind margin of preopercle; lateral line broadly arched over pectoral fin, then gradually slanting to straight midlaterally on about posterior fourth of body.

Origin of dorsal fin over 3rd to 4th lateral-line scale, predorsal length about equal to head length; four dorsal spines, progressively longer posteriorly, the last spine entirely attached to 1st soft ray by membrane; soft dorsal-fin rays progressively longer posteriorly, penultimate soft dorsal-fin ray longest; pectoral fins broadly rounded when spread, 9th or 10th ray longest, reaching 1st or 2nd anal-fin ray; origin of pelvic fins anterior to pectoral fin origin, below base of exposed part of opercular spine; pelvic fin relatively short, 4th pelvic-fin ray longest, reaches the anus (slightly beyond in some non-types); origin of anal fin below base of 5th dorsal soft ray; anal-fin spine slender; penultimate anal soft ray longest; caudal fin rounded, without prolongation.

Coloration. Color when fresh: yellow vertical bars on the sides of the body; dorsal and anal fins golden yellow; grey pigmentation on lateral-line (remaining in alcohol and formalin); snout and eye olive yellow (based on Fourmanoir & Rivaton, 1979). Coloration when preserved: body uniformly yellowish, scales on dorsal third of body covered by scattered melanophores (clearer under magnification), which continues to the caudal-fin base; melanophores more dense on posterior margins of anterior 24 (23–26) pored lateral-line scales; a cluster of melanophores on membranes between 1st and 4th dorsal-fin spines (some non-types are paler); clusters of melanophores on snout, with a larger and denser patch at space between upper jaw and orbit; an elongate cluster of melanophores on dorso-posterior corner of eye; one non-type with a cluster of melanophores at posterior margin of preopercle.

Distribution. Known from a few specimens from New Caledonia at depths of 360–430 m.

Remarks. In the original description, Fourmanoir & Rivaton (1979) provided the following data for the types: dorsal-fin rays IV, 20, anal-fin rays 20; pectoral-fin rays 18 or 19, lateral-line scales 64 (probably including those on caudal fin), and anterior canines 3. Based on current examination, the holotype and paratype have IV, 23 dorsal-fin rays, I, 19 anal-fin rays, 18/19 (19/19 in paratype) pectoral-fin rays, 60 pored scales on lateral line (not including 2/3 on caudal fin in holotype, 3 in paratype), and canines at front of lower jaw 3 (left side)/4 (right side) (3/3 in paratype). All other non-types have 4 canines at each side of front of lower jaw, so the status of this character is revised accordingly.

***Parapercis fuscilineata* Fourmanoir, 1985**

Figs. 4A–C; Table 2

Parapercis fuscilineata Fourmanoir, 1985:36, Fig. 1 (type locality: Lubang Islands, the Philippines). Randall, 2001:3505 (in Key).

Status of type specimens. Fourmanoir (1985) stated four specimens were used to describe his new species (54, 63, 65 and 78 mm), all collected from station 51. He pointed out that the 63 mm specimen was sent to Bishop Museum (BPBM 29668) and the 65 mm one was the holotype (MNHN 1984-430). He also mentioned “although several rays of dorsal and anal fins are broken, we selected the specimen of 65 mm SL as type. The 78 mm specimen, designated paratype...” However, the only specimen in MNHN 1984-430 is 76.1 mm SL (originally entered as 78 mm in the database) and thus is not the holotype, but one of the paratypes. As no other specimen can be found from the same cruise or station in the collection, the holotype and 54 mm paratype are presumed to be lost.

Specimen examined. Paratypes. MNHN 1984-430 (76.1 mm SL), 13°58'59"N, 120°16'1"E, off Manila Bay, Lubang Island, the Philippines, 4 m beam trawl, 27 Nov. 1980. BPBM 29668 (62.5 mm SL), 13°59.3'N, 120°16.4'E, off Manila Bay, Lubang Island, the Philippines, 27 Nov. 1980. **Non-type.** MNHN 2000-5541 (1, 34.9 mm SL), 18°57'00"S, 163°22'01"E, New Caledonia, Coral Sea, 355 m, 18 Sep. 1985. MNHN 2001-3346 (1, 104 mm SL), 16°04'01"S, 167°06'00"E, Vanuatu, Coral Sea, perch trawl, 180–210 m, 5 Oct. 1994. MNHN 2002-3759 (1, 88 mm SL), 9°48'04"S, 160°50'02"E, Solomon Islands, Solomon Sea, 2001.

Diagnosis. A species of *Parapercis* with a prominent black longitudinal stripe extending from the opercle to the base of the caudal fin, ending with a large ocellus on the upper caudal fin base. A combination of the following characters also distinguish the species from its congeners: a small head (27.2–27.5% SL); a short snout (5.9–6.4% SL); large eyes (9.7–9.9% SL); narrow interorbital (1.4–1.7% SL); 4 pairs of canines at front of lower jaw; 2 or 3 rows of conical teeth on vomer and palatines; dorsal-fin rays IV, 23, the spines progressively longer posteriorly; anal-fin rays I, 19; pectoral-fin rays 19; pored lateral-line scales 61–63; scale rows between origin of dorsal fin and lateral line 3.5 or 4.5; total gill rakers on first arch 15 or 20 (based on two paratypes).

Description. The following data are given for the 76.1 mm and 63.0 mm paratypes, followed by three non-type specimens in parentheses when different, except where indicated otherwise.

Dorsal-fin rays IV, 23 (V, 23 in all three non-types), first spine very short (tiny first spine in 88-mm non-type specimen), the spines progressively longer, the last spine fully connected to the first dorsal-fin ray by membrane, all rays branched; anal-fin rays I, 19, all rays branched, the last one to the base; pectoral-fin rays 18, branched except the uppermost ray; principal caudal-fin rays 17, uppermost 2 and lowermost 1 rays unbranched; pored lateral-line scales 61–63 (60–61), not including 1–4 on the caudal-fin base (lost in both paratypes); scale rows between origin of dorsal fin posteroventrally to lateral line 3.5 or 4.5 (4 or 4.5); scale rows below lateral line posteroventrally to origin of anal fin ca. 12 (9 to 12); median predorsal scales 9 (8 or 9); circumpeduncular scale rows 18 (lost in 62.5 mm paratype; 21 or 22); rakers on outer side of first gill arch 7+13 in 76.1 mm paratype and 5+10 in 62.5 mm paratype (4+8 in 34.9 mm non-type, 5+9 in 88 mm non-type; 4+10 in 104 mm non-type); pseudobranchial filaments 11 in 62.5 mm paratype and damaged in 76.1 mm paratype (ca. 10 in 34.9 mm non-type, 15 in 88 mm non-type and 14 in 104 mm non-type); branchiostegal rays 6.

Body elongated and stout, nearly cylindrical anteriorly and gradually compressed posteriorly; head relatively short and rounded, its length 27.2–27.5% (25.8–30.4%) SL; ventral part of head, chest, and abdomen slightly convex; snout very short 5.9–6.4% (6.0–7.8%) SL; eye relatively large, its diameter 9.7–9.9% (9.5–9.6 % in two larger non-types, 13.2% in 34.9 mm specimen) SL; interorbital space very narrow, 1.4–1.7% (1.6–1.7%) SL.

Mouth small, maxilla nearly reaching a vertical from midpoint of eye; mouth oblique, forming an angle of about 20° to horizontal axis of body; lower jaw extends slightly beyond upper jaw anteriorly; upper jaw with outer row of conical teeth that curve medially and posteriorly, anterior 3 (3 or 4) distinctly larger (with a small tooth at jaw symphysis in 76.1 mm paratype); broad band of villiform teeth medial to canines in about 8 (7 or 8) rows at front of upper jaw, gradually narrowing posteriorly to a narrow band of about 1 or 2 irregular rows; 4 recurved canine teeth on each side of front of lower jaw (1 side with 3 in 88.0 mm specimen, which may have lost 1), outer one largest; band of about 8 rows of villiform teeth medial to canines at front of lower jaw, medial row continuing laterally in jaw posterior to first few canines as row of 8 or 10 (8) increasingly larger and more strongly recurved teeth (last 3 or 4 of these distinctly enlarged), followed by a single row of small teeth to middle portion of jaw; vomer with 2 rows of conical teeth, those on 2nd row smaller than that of 1st row; palatines with two rows of stout teeth; lips smooth, their inner surface with large fleshy papillae that interdigitate with anterior teeth; tongue broadly rounded, reaching forward to posterior vomerine teeth.



FIGURE 4. *Parapercis fuscilineata* Fourmanoir, 1985. A. MNHN 1984-430, paratype, 76.1 mm SL, lateral view of right body.. B. BPBM 29668, paratype, 62.5 mm SL, lateral view of left body. C. MNHN 2000-5541, non-type, juvenile, 34.9 mm SL, lateral view of right body.

Gill membranes free from isthmus, with a broad transverse free fold. Gill rakers short and spinous, longest about 1/3 length of longest gill filaments. Nostrils small, anterior nostril tube-like, in front of center of eye (viewed from side), a little more than half way to groove at edge of upper lip, with a broadly pointed posterior flap that reaches posterior nostril when laid back; posterior nostril dorsoposterior to anterior nostril, ovate with slight rim; internasal distance about 2 (1–2) times diameter of posterior nostril.

Pores of cephalic sensory system relatively numerous and connected by canals beneath skin; row of 4 large pores above maxilla; 3 pores near nostrils, 1 pore above and 1 below the posterior nostril, 1 pore between both nostrils; 2 pores on each side of space between posterior nostril to anterior interorbital space; infraorbital series of pores numerous, about 9 branches, each with a subcutaneous canal extending ventrally to middle of the cheek;

many pores on top of head, with three major branches, 1 continuing to anterior end of lateral line, 1 to the upper end of preopercular series, and 1 to dorsal end of infraorbital series; 2 irregular rows of pores on free margin of preopercle; 4 large pores on mandibular; 2 large pores at front of chin.

Opercle bearing a strong sharp spine, at about same level as ventral edge of pupil when viewed from the side; free margin of subopercle with a strong spine, slightly smaller than the opercular spine; preopercle broadly rounded, its free edge smooth; free margin of interorbital smooth.

Scales large, strongly ctenoid and imbricate in most parts of body; those on opercle large and ctenoid (scales lost in both paratypes); on space anterior to pectoral fin base ctenoid; on pectoral fin base small and ctenoid (lost in 76.1 mm paratype; few scales remained in 62.5 mm paratype); on nape anterior to a line from upper free end of gill opening to origin of dorsal fin cycloid (scales lost in both paratypes); on cheek large and strongly ctenoid (mostly lost in 62.5 mm paratype); on chest weakly cycloid (mostly lost in both paratypes); on abdomen ctenoid (mostly lost in both paratypes); on caudal fin progressively smaller and ctenoid, covering about 3/4 of the upper and lower lobes, and 1/2 of the middle portion (mostly lost in both paratypes); no scales on dorsal, anal, or pelvic fins; predorsal scales extending forward to, or slightly anterior to, a vertical from the hind margin of preopercle; lateral line broadly arched over pectoral fin, then gradually slanting to straight midlaterally on about posterior fourth of body.

Origin of dorsal fin over 3rd to 4th lateral-line scale, predorsal length about equal to head length; 4 dorsal spines, progressively longer posteriorly, the last spine entirely attached to 1st soft ray by membrane; soft dorsal-fin rays progressively longer posteriorly, penultimate soft dorsal-fin ray longest; pectoral fins broadly rounded when spread, 9th or 10th ray longest, reaching 1st or 2nd anal fin ray; origin of pelvic fins anterior to pectoral fin origin, below base of exposed part of opercular spine; pelvic fin relatively short, 4th pelvic-fin ray longest, just reaching anus (slightly beyond anus in 2 smaller non-types); origin of anal fin below base of 5th dorsal soft ray; anal-fin spine slender; penultimate anal soft ray longest; caudal fin truncated, with rounded upper and lower lobes.

Color when fresh. Based on Fourmanoir (1985): dorsal surface light brown; a brown longitudinal stripe extending from the posterior margin of eye to the dorsal fin base; a pale stripe above and adjacent to the brown stripe; dorsal surface of head brownish pink; snout and lower part of head yellow; eye yellow, with green-blue patch on upper part; 12 vertical bands on lower half of sides of body; a black ocellus (pyriform blotch) at upper half of caudal-fin base, 3 large reddish-yellow oblique stripes on rest of the fin. Fresh color unknown in non-types.

Color when preserved. Based on two paratypes: body pale brown; slightly deeper brown on dorsal surface of head and body; spinous dorsal fin brownish (an indistinct black spot on membranes of first 3 spines in both paratype); a slightly faded, brown longitudinal strip on dorsal third of body, extending from behind the eye to near the caudal fin base; lower two-thirds of body paler; a black spot on upper half of caudal fin base (an indistinct ocellus in 62.5 mm paratype); all fins transparent; posterior portion of eye with a narrow band or small patch of melanophores; scattered melanophores on pelvic fin.

Based on 88 mm and 104 mm non-types: body pale to yellowish-brown; dorsal surface slightly deeper brown; a prominent longitudinal stripe on dorsal third of body, extending from behind the eye to near caudal-fin base; lower two-thirds of body paler; a black spot on upper half of caudal fin base; scattered melanophores on snout and cheek (clearer under magnification); a cluster of scattered melanophores on center of pectoral-fin base (clearer under magnification); a small spot at upper base of pectoral fin in 104 mm specimen; spinous dorsal fin black; scattered melanophores on upper and posterior portions of eye, forming a black patch on posterior portion, about same level as the black stripe; scattered melanophores on pelvic fin.

Based on 34.9 mm non-type juvenile: body pale uniformly; a prominent black stripe on dorsal third of body, extending from behind the eye and ending with an ocellus (black spot circled by white) at upper half of caudal-fin base; spinous dorsal fin brownish with a small black patch; a small cluster of melanophores on posterior portion of eye, about same level as the black stripe

Distribution. The type series was collected from offshore of the Lubang Islands, Philippines at a depth of 170–187 m. Three additional specimens were collected from Vanuatu, New Caledonia and Solomon Islands, respectively, at depths from 180–355 m.

Remarks. *Parapercis fuscolineata* is similar to *P. ramsayi* from southern Australia, but differs in lacking a row of black patches on lower body and black margins on the anal and caudal fins. Although not mentioned in original description, two paratypes have a brownish patch on the spinous dorsal fin. This is also consistent in the three additional specimens.

Although the three non-type specimens were identified as the present species, several differences were noted, so the identifications for these are preliminary. There are five dorsal-fin spines in all three non-types, however, Fourmanoir (1985) reported four dorsal-fin spines in his specimens and this was confirmed in this study. The presence of four dorsal-fin spines is a rare but stable character which occurs in only 7 of 80 species of *Parapercis*.

There are 18 circumpeduncular scale rows in the 76.1 mm paratype (scales were lost and not counted in 62.5 mm paratype), whereas the non-types have 21 or 22. Counts of this feature are usually quite stable in other congeners, with intraspecific variation generally limited to about 2 scale rows.

Gill rakers on the first arch are 7+13 in the 76.1 mm paratype and 5+10 in the 62.5 mm paratype, whereas there are 5+9 in the 88 mm specimen, 4+10 in the 104 mm specimen and 4+8 in 34.9 mm specimen. According to Fourmanoir (1985), “the dark stripe is indistinct in the juvenile specimen and it disappears quickly in alcohol.” However, the smallest non-type specimen has a solid black longitudinal stripe on the upper body (Fig. 4C), after 30 years of preservation.

Although all other morphological characters of these three additional specimens appear identical to the original description and paratypes, the differences mentioned above may indicate the existence of an undescribed species and should be further assessed when more specimens become available.

Comments on other species occurring in the region

Parapercis binivirgata (Waite, 1904)

Neopercis binivirgata Waite, 1904:236, pl. 25, fig. 3 (type locality: Coogee, New South Wales, 33°55'S, 151°17'E, Australia)
Parapercis binivirgata (Waite, 1904): Cantwell, 1964:252. Johnson & Randall, 2006:58. Johnson, 2008:671. Ho & Johnson, 2013:282. Johnson *et al.*, 2014:496.

Specimens examined. MNHN 2000-1389 (1, 160), 25°10'1"S, 159°52'59"E, Chesterfield, Coral Sea, perch trawl, 280–290 m, 7 Oct. 1986. MNHN 2000-1392 (1, 161), 23°9'0"S, 159°31'1" E, Chesterfield, Coral Sea, perch trawl, 280 m, 11 Oct. 1986. MNHN 2000-1399 (1, 162–182), 22°25'1"S, 159°27'0"E, Chesterfield, Coral Sea, perch trawl, 330–335 m, 13 Oct. 1986. MNHN 2000-1401 (4, 92.7–178), 22°10'19"S, 159°22'8"E, Chesterfield, Coral Sea, perch trawl, 340 m, 12 Oct. 1986. MNHN 2000-1402 (4, 61.3–119.9), 22°10'59"S, 159°24'0"E, Chesterfield, Coral Sea, perch trawl, 345–350 m, 12 Oct. 1986. MNHN 2000-1404 (1, 116.1) and MNHN 2000-1406 (1, 110.4), 22°10'S, 168°9'E, New Caledonia, Coral Sea, 223–300 m, 27 Oct. 1986. MNHN 2000-1405(1, 162), 22°25'1"S, 159°24'0"E, Chesterfield, Coral Sea, perch trawl, 330 m, 13 Oct. 1986. MNHN 2000-1421 (1, 99), 19°52'59"S, 158°39'0"E, Chesterfield, Coral Sea, perch trawl, 370–400 m, 20 Oct. 1986. MNHN 2000-1423 (1, 124), 22°9'0"S, 159°37'59"E, Chesterfield, Coral Sea, perch trawl, 160–280 m, 10 Oct. 1986. MNHN 2000-5205 (1, 84.0), 19°7'1"S, 163°28'59"E, New Caledonia, Coral Sea, perch trawl, 215 m, 19 Sep. 1985. MNHN 2000-5500 (2, 76.0–78.4), 18°59'31"S, 163°25'1"E, New Caledonia, Coral Sea, 320 m, 19 Sep. 1985. MNHN 2002-3155 (3, 61.5–81.7), 18°58'59"S, 163°25'1"E, New Caledonia, Coral Sea, perch trawl, 320 m, 19 Sep. 1985. MNHN 2003-1131 (1, 67.8), 23°40'5"S, 168°15'0"E, Norfolk Ridge, New Caledonia, Coral Sea, perch trawl, 389–404 m, 12 Aug. 1999.

Remarks. *Parapercis binivirgata* is the only species in the genus with 13 transverse bars on the upper body. All specimens examined were collected by perch trawl from depths of 215–404 m, indicating this is one of the deepest living species of the genus. Johnson *et al.* (2014) recently provided detailed data to compare this species with their new species *P. nigrodosalis*.

Parapercis schauinslandii (Steindachner, 1900)

Percis schauinslandii Steindachner, 1900:175 (type locality: Honolulu, Oahu Island, Hawaiian Islands).
Parapercis schauinslandii (Steindachner, 1900): Cantwell, 1964:257. Randall, 2008:168. Ho, 2013:298. Ho, 2014:78.

Specimen examined. MNHN 2000-4506 (1, 54.5), 8°48'0"S, 140°3'0"W, NukuHiva, Marquesas Islands, Polynesia, perch trawl, 35–55 m, 26 Aug. 1997. MNHN 2000-5498 (4, 42.3–54.2), 7°57'S, 140°42'W, Eiao, Marquesas Islands, Polynesia, perch trawl, 49–55 m, 23 Aug. 1997. MNHN 2000-5670 (1, 45.8), 9°52'1"S,

139°1'59"W, Hiva Oa, Marquesas Islands, Polynesia, dredge, 60–61 m, 28 Aug. 1997. MNHN 2000-5679 (2, 57.7–66.8), 9°19'59"S, 140°7'1"W, Ua Pou, Marquesas Islands, Polynesia, 90–92 m, perch trawl, 3 Sep. 1997. MNHN 2003-1274 (1, 52.5), 8°46'1"S, 140°13'59"W, Nuku Hiva, Marquesas Islands, Polynesia, perch trawl, 74–75 m, 25 Aug. 1997. MNHN 2008-0814 (1, 53.4), MNHN 2008-0815 (1, 44.5), MNHN 2008-0816 (1, 40.5), Moorea Island, Society Islands, Polynesia, 35 m, 18 Mar. 2006. MNHN 2008-0880 (1, 22.8–42.6), Moorea Island, Society Islands, Polynesia, 30 m, 19 Mar. 2006.

Remarks. This species is common and widespread in the Indo-west Pacific region. All specimens were collected from the Marquesas Islands at depths 30–92 m.

Parapercis lineopunctata Randall, 2003

Parapercis lineopunctata Randall, 2003:12, figs. 7-8 (type locality: Bolino, Luzon Island, Philippines, depth 5-7 meters).

Specimen examined. MNHN 2008-1458 (2, 43.9–55.5), 15°31'41"S, 167°10'48"E, Vanuatu, Coral Sea, 36–43 m, 12 Oct. 2006. MNHN 2008-1654 (1, 36.1), 16°24'25"S, 167°48'11"E, Vanuatu, Coral Sea, 60–197 m, 21 Oct. 2006. MNHN 2008-2575 (1, 47.8), northwestern New Caledonia, May 1999. MNHN 2008-2582 (1, 33.3), 17°46'59"S, 177°12'0"E, Fiji Islands, 32 m, 21 Oct. 1998.

Remarks. This species is widely distributed in the western Pacific Ocean. Specimens examined herein represent the first record for Vanuatu, Fiji and New Caledonia. Specimens were collected at depth 32–43 m, except for 1 lot taken at depth 60–197 m. Many other specimens were examined in NSMT-P, USNM and CAS.

Parapercis sagma Allen & Erdmann, 2013

Parapercis sagma Allen & Erdmann, 2012:1154, figs. 1-3 (type locality: Palau Panjang, 2°58.560'S, 132°17.732'E, Fakfak Peninsula, Papua Barat Province, Indonesia, depth 60 meters).

Specimen examined. MNHN 2001-3370 (2, 55.1–71.4), 15°52'1"S, 167°19'1"E, Vanuatu, Coral Sea, 397–439 m, 5 Oct. 1994. MNHN 2008-1527 (1, 87.7), 15°36'29"S, 167°2'17"E, Santo, Vanuatu, Coral Sea, 71–122 m, 19 Oct. 2006. MNHN 2010-0684 (1, 65.6), 15°27'47"S, 167°15'43"E, Palikulo Bay, Vanuatu, Coral Sea, 146–153 m, 19 Sep. 2006. MNHN 2010-0687 (1, 45.5), 15°24'0"S, 167°13'30"E, Palikulo Bay, Vanuatu, Coral Sea, 102–120 m, 19 Sep. 2006.

Remarks. This species was described based on three specimens collected from Indonesia and Vanuatu at depths from 60–80 m. The MNHN specimens have one row of faint spots along the body axis and two faint spots on the caudal fin base which were not clear in illustrations presented with the original description. Also, the dorsal fins of all specimens are uniformly pale, without spots. These differences may be due to preservation.

It is notable that these specimens were collected from greater depths, most from 71–153 m, but one lot from 397–439 m. Although this species seems to be a deep water species, it is unusual for a *Parapercis* species to have such wide range of depth distribution.

Parapercis cf. *compressa* (sensu Randall, 2008)

Specimen examined. MNHN 2001-2869 (4, 56.7–67.4), 14°19.5'S, 178°04.3'W, Wallis and Futuna Island, 245–400 m, perch trawl, 11 May 1992. MNHN 2001-3365 (5, 51.2–74.0), Wallis and Futuna, no other data.

Remarks. This species was described based on a single specimen collected from Sumbawa, Indonesia at a depth of 40–60 m. Although the MNHN specimens are similar to *P. compressa*, all specimens have 4 large canines at each side of front of lower jaw, whereas Randall (2008) reported only 2 (with suspicion of some being lost). Two additional specimens (HUMZ 46866, 102.0 mm SL, and HUMZ 46986, 82.4 mm SL) were collected from off NW Borneo, Indonesia. Both specimens agree with the original description, except there were 3 pairs of canines at front of lower jaw and 4+10 gill rakers on first gill arch. The 3 pairs of canines at front of lower jaw confirmed the suspicion of Randall (2008:163) and the diagnostic character might be revised accordingly.

It is notable that all specimens collected from Willis and Futuna have 4 pairs of canines at the front of the lower jaw and a large gray patch under the skin behind the pectoral-fin base and may therefore represent a distinct species. However, all specimens are in poor condition with almost all scales lost. More specimens in better condition, with information on fresh coloration, are needed to verify the species identification.

Parapercis cf. colemani (sensu Randall & Francis, 1993)

Specimen examined. MNHN 2004-2526 (1, 57.7), 20°34'59"S, 164°58'59"E, New Caledonia, Coral Sea, 227–250 m, 17 Mar. 1993. MNHN 2000-1424 (1, 81.3), 20°43'1"S, 167°0'0"E, New Caledonia, Coral Sea, 150–210 m, 6 Sep. 1985.

Remarks. *Parapercis colemani* was originally described from a single specimen from Norfolk Island. Johnson (2006) reported an additional 4 specimens, taken from Norfolk Island, the Lord Howe Rise, and the Norfolk Ridge. Two specimens examined herein were collected from New Caledonia at depths of 150–250 m. Johnson (2006) also noted that his specimens were collected from 89–113 m depth, whereas the holotype was collected at a depth of only 1.5 m. The 81.3 mm specimen is somewhat different from *P. colemani*, but similar to *P. katoi* Randall *et al.*, 2008, in lacking black spots on the top of head. There are also other specimens in the MNHN collection possessing a similar appearance, but totally lacking any markings or details of coloration. More specimens, as well as information on fresh color are needed to confirm the species identification.

Comparative materials. *Parapercis compressa*: HUMZ 46866 (1, 102.0), 3°40'N, 109°25'E, northwestern Borneo, Indonesia, 11 Nov. 1975. HUMZ 46986 (1, 82.4), 3°08'N, 109°29'E, northwestern Borneo, Indonesia, 13 Nov. 1975.

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References

- Fourmanoir, P. & Rivaton, J. (1979) Poissons de la penterécifale externe de Nouvelle-Calédonie et des Nouvelles-Hébrides. *Cahiers de l'Indo-Pacifique*, 1 (4), 405–443.
- Fourmanoir, P. (1985) Poissons. Liste et description de cinq espèces nouvelles (MUSORSTOM II). *Mémoires du Muséum National d'Histoire Naturelle*, Série A (Zoologie), 133, 31–54.
- Ho, H.-C. & Shao, K.-T. (2010) *Parapercis randalli*, a new sandperch (Pisces: Pinguipedidae) from southern Taiwan. *Zootaxa*, 2690, 59–67.
- Ho, H.-C. & Causse, R. (2012) Redescription of *Parapercis rufa* Randall, 2001, a replacement name for *P. rosea* Fourmanoir, 1985, based on specimens newly collected from southern Taiwan. *Zootaxa*, 3363, 38–44.
- Ho, H.-C., Chang, C.-H. & Shao, K.-T. (2012) Two new sandperches (Perciformes: Pinguipedidae: *Parapercis*) from South China Sea, based on morphology and DNA barcoding. *The Raffles Bulletin of Zoology*, 60 (1), 163–172.
- Ho, H.-C., Heemstra, P.C. & Imamura, H. (2014) A new species of the sandperch genus *Parapercis* from the western Indian Ocean (Perciformes: Pinguipedidae). *Zootaxa*, 3802 (3), 335–345.
<http://dx.doi.org/10.11646/zootaxa.3802.3.3>
- Johnson, J.W. (2006) Two new species of *Parapercis* (Perciformes: Pinguipedidae) from north-eastern Australia, and recovery of *Parapercis colemani* Randall & Francis, 1993. *Memoirs of the Museum of Victoria*, 63, 47–56.
- Johnson, J.W., Struthers, C.D. & Wilmer, J.W. (2014) *Parapercis nigrodorsalis* (Perciformes: Pinguipedidae), a new species of sandperch from northern New Zealand and the Norfolk Ridge, Tasman Sea and remarks on *P. binivirgata* (Waite, 1904). *Zootaxa*, 3856 (4), 484–500.
<http://dx.doi.org/10.11646/zootaxa.3856.4.2>

- Randall, J.E. (2001) Family Pinguipedidae (= Parapercidae, Mugiloididae). In: Carpenter & Niem (Ed.), *Species identification guide for fishery purposes. The living marine resources of the western central Pacific Vol 6. Bony fishes part 4 (Labridae to Latimeriidae), estuarine crocodiles, sea turtles, sea snakes and marine mammals*. FAO, Rome., pp. 3501–3510.
- Randall, J.E. (2008) Six new sandperches of the genus *Parapercis* from the Western Pacific, with description of a neotype for *P. maculata* (Bloch & Schneider). *The Raffles Bulletin of Zoology*, 19 (Supplement), 159–178.
- Randall, J.E. & Francis, M.P. (1993) *Parapercis colemani*, a new pinguipedid fish from Norfolk Island, south-western Pacific Ocean. *New Zealand Journal of Marine and Freshwater Research*, 27 (2), 209–214.
<http://dx.doi.org/10.1080/00288330.1993.9516559>
- Randall, J.E., Senou, H. & Yoshino, T. (2008) Three new pinguipedid fishes of the genus *Parapercis* from Japan. *Bulletin of the National Museum of Natural Science, Series A*, 2 (Supplement), 69–84.